Du'Bois J. Ferguson Remediation Manager

Schlumberger Oilfield Service 300 Schlumberger Drive Sugar Land, TX 77478 Tel: 281-285-3692 DFerguson3@slb.com

January 9, 2012

Section Chief Environmental Enforcement Section U.S. Department of Justice PO Box 7611 Washington, DC 20044-7611 VIA FedEx Overnight

Craig Zeller
Remedial Project Manager
Superfund Division
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

Re: DOJ Case No. 90-11-2-696/1

Subject: Fourth Quarter 2011 Progress Report

Sangamo Weston/Twelvemile Creek/Lake Hartwell Superfund Site

Natural Resources Trustees Consent Decree

Dear Section Chief:

In accordance with the Consent Decree and Section XIV of the Unilateral Administrative Order for the above referenced site, Schlumberger is required to submit Progress Reports on a quarterly basis. Given the pace of activities during construction, Progress Reports were submitted on a monthly basis through October 2011; this Fourth Quarter 2011 Progress Report describes activities performed during the fourth quarter since the October 2011 Monthly Report.

In keeping with Paragraph 20 of the Consent Decree:

I certify that the information contained in or accompanying this submission is true, accurate and complete. This certification is based on my personal preparation, review, or analysis of the submission, and/or supervision of persons who, acting on my instructions, made the verification that the submitted information is true, accurate and complete.

If you have any questions, please do not hesitate to contact me at (281) 285-3692.

Sincerely,

DuBois J. Ferguson

Remediation Manager



U.S. EPA REGION IV

SDMS

POOR LEGIBILITY

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cc: Honorable G. Ross Anderson, Jr. G. Ross Anderson, Jr. Federal Building and United States Courthouse 315 South McDuffie Street, 2nd Floor Anderson, SC 29624

Honorable William W. Wilkins Nexsen Pruet 55 E. Camperdown Way Suite 400 Greenville SC 29601

Leon C. Harmon Esq. Nexsen Pruet 55 E. Camperdown Way Suite 400 Greenville SC 29601

John Cresswell
Assistant Director
Division of Site Assessment and Remediation
Bureau of Land & Waste Management
SC Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Regional Solicitor's Office U.S. Department of the Interior Attn: Harriet M. Deal 75 Spring Street, SW Room 304 Atlanta, GA 30303

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Mr. Paul Doody ARCADIS 6723 Towpath Road Syracuse, NY 13214-0066

Mr. Ronald Cardwell McNair Law Firm, P.A. Post Office Box 447 Greenville, SC 29602

Ms. Celeste T. Jones McNair Law Firm, P.A. Post Office Box 11390 Columbia, SC 29211

Fourth Quarter 2011 Progress Report Sangamo Weston/Twelvemile Creek/Lake Hartwell Superfund Site Operable Unit 2

Reporting Period: November 1 through December 31, 2011

Activities Initiated/Completed

- Completed SMU cover system installation including geosynthetic clay liner, LLDPE geomembrane, geocomposite drainage liner, soil protective cover layer and topsoil.
- Completed construction of down drains and other storm water controls at the SMU.
- Completed hydroseeding and other erosion control measures/SMU landscaping and erosion control matting activities.
- Continued survey activities.
- Initiated installation of fencing around the SMU and installed "No Trespassing" signs along the fence.
- Continued demobilization of non-essential site equipment.
- Initiated and completed installation of power line to the 30" sump.
- Initiated installation of the sump pump.
- SCDHEC Solid Waste Management Regional personnel were onsite on November 10 and December 14 for a general visit/inspection and to perform a Class Three Landfill Inspection in accordance with Regulation 61-107.19, Part V. The completed Inspection Forms are provided as Attachment 1. Minor issues were noted during these inspections, and actions were taken to address the items at issue.

Results of Sampling, Tests, and Other Data

- Sampling and analysis is being conducted relative to the water treatment system (WTS) effluent water. Results for the effluent water are attached (Attachment 2).
- Construction photographs are included as Attachment 3.

Plans, Reports, and other Deliverables

 Analytical data related to samples collected from the WTS to assess water treatment effluent water were submitted to SCDHEC monthly. Copies of the reports submitted on November 17 and December 21 are provided in Attachment 2.

Work Planned for First Quarter 2012

- Demobilize WTS and remaining equipment.
- Install historical markers at WS I and WS II.
- Complete installation of fencing around SMU.
- Complete installation of the sump pump.
- Complete construction demobilization.
- Prepare Final /As-Built Report and revise the Closure/Post Closure Caré Plan.
- Submit Fourth Quarter Restoration Progress Report.

Issues Encountered, Anticipated Delays, Solutions

- Severe weather, including heavy rain, impacted field operation, and all construction activities, except water treatment, were suspended November 16 through November 18.
- No site work was performed on November 28 due to heavy rains; saturated soils continued to impact site activities on November 29.



Attachment 1



Class Three Landfill Inspection Form. Regulation 61-107:19, Part V

Facility Name: 12 mJ Lack Smu	Date/Time of Inspection	Aprile 10 2011-
County: 1/1/2 (Routine: Föllow-tip:	Permit# .	
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Current-Weather Conditions: 2. //	es, amountinches; Hi	gh winds YUV
1 = Meets or exceeds regulatory requirements: 2A - improvement 2B - improvement needed (moderate issues exist) corrective actions.	needed (minor issues exist, o	orrective measures recommended);
recuming issues with minimal or no corrective action taken = allege great reterral required), Y = Yes, Meets or exceeds regulatory requ	ed regulatory or permit condition sirements; N – No. Corrective r	n violations have occurred — enforce- neasures recommended that should
 be fixed by the next inspection or an agreed upon completion date 		
Procedures for Excluding Receipt of Unapproved Waste (258:29)		nstalled and functioning properly
Overall effectiveness of Special Waste Analysis and Implementation Plan (SWAIP)		d equipment operational - if not
2 Y NNA NI Trained waste screener present 3 Y NNA NI Random daily load inspections conducted and	្សែ រប់ ្រែ type of e	provide details in comments as to the equipment down for repairs, impact to
documented 4. Y NNA NI. Records of unacceptable waste maintained	ment eq	ns, and status on temporary replace- ulpment
75. Y NNA NI Personnel training program on recognition of regulated hazardous waste and PCB waste		rand supervisor certified by SCDHEC
6. YNNANI Record of Notification to Department within	Leachate Callection Syst	manager or supervisor on-site em (258.33 and 34)
7 Y NANI Unauthorized wastes removed from working a face by the end of the operating day	31 Leachate collect	e handling agreement in place tlon system management
Cover Material Requirements (258.21) 8. // 2 6 soll (short-term cover)	32 Leachate recirc	ystem (258 Subpart I and Permit) - ulation system menagement
9. /// Alternate Daily Cover (ADC) 10. /4/1 ≥ 6" soil (long-term and/or intermediate cover)	33. (YN MAN) Require	d leachate recirculation reports/data
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12 Blowing litter. 3. Off-site odors	Testing of Municipal Solid (258:35)	Waste (MSW) Incinerator Ash
14. Disease vectors 15. Fres/Open-burning.		cinerator ash management
16 Scavenging Access Requirements (258.25)	37. (☑N (⑤N) ♥ Require Condition of Monitoring \	d signs posted
7. Condition of access controls 18. Condition of all weether roads – entrance	38 Monitoring well Working Face/Elevation (maintenance program
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21. 20 Condition of berms/terraces/downchutes 22. 21. Condition of sedimentation ponds	and ger	ng in accordance with approved plans ieral permit
Léachate Seeps (258.26 and 27) 23. //// Leachate seep management	42. YN NA NI Permitte	ed operational plan available
Liquid Restrictions (258:28) 24. /// Free of unauthorized bulk or non-containerized	avallabl	"我们是我们的,我们就是我们的,我就是我们的,我们就是我们的。"
liquids Record Keeping Regulrements (258.29)	45. YN NA NI Permitti	ed contingency plan available ed approved groundwater-monitoring
25. SIN NANI Required records are maintained in the		ed closure plan available
	47 YN NAÑ) Permitto	ed post-closure plan available
Name of those present during the inspection:		
Comments: (1) Exception (them to little day its problems of	beed the line from	CLES TO DE / STATE CONTRACT
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	hotos taken: Y/N	
The signature below certifies that the SCDHEC Inspector has per condition existing at the time of inspection.	sonally checked each item and	nas answered according to the true
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	CDHEC laspector	7/东京,1877年至至11年20年1



Class Three Landfill Inspection Form Regulation 61-107.19, Part V

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urring issues with minimal or no corrective action taken	 alleged regulatory or permit condition violations have occurred an enforce- ory requirements. N – No. Corrective measures recommended that should
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Implementation Plan (SWAIP)	27 (YN NA NI Required equipment operational - If not
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Blowing litter Off-site odors	Testing of Municipal Solid Waste (MSW) Incinerator Ash (258.35)
Disease vectors	38. Y N NANI. MSW incinerator ash management
Fires/Open burning Scavenging	Sign Requirements (258.36) 37. YN NANI Required signs posted
ccess Requirements (258.25)	Condition of Monitoring Wells (258.51) 38. Monitoring well maintenance program
Condition of access controls Condition of all weather roads—entrance	Working Face/Elevation (258.87)
Condition of all weather - internal haul roads	39: (Y/N NA NI Method of elevation control with benchmark
un-on/Run-off Controls (258:26) Condition of ditches/swales	Plans and Permit (Permit)
Condition of berms/terraces/downchutes Condition of sedimentation ponds	and general permit
eachate Seeps (258.26 and 27)	41. X NANI Permitted engineering drawings available.
3. Leachate seep management quid Restrictions (258.28)	43. YN NA NI Permitted stabilization/landscaping plan
4. Free of unauthorized bulk or non-containenze	ed evallable 44. YN NA NI Parmitted contingency plan available
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Additional comment page: YN	Photos taken: Y.N
The second below and fine that the SCOHEC Inspects	or has personally checked each item and has answered according to the true
condition existing at the time of inspection.	"我们们,我就是一定想,我就说,我们就好了,我们就是我们的我们的我们,那么我们的,我们们的我们。"



Attachment 2



Infrastructure Water Environment Buildings

Mr. Dale Stoudemire, Manager
South Carolina Department of Health and Environmental Control
Bureau of Water/Water Pollution Control Division
Data Management Section
2600 Bull Street
Columbia. South Carolina 29201

6723 Towpath Road P.O. Box 66 Syracuse New York 13214-0066 Tel 315.446.9120 Fax 315.449.0017 www.arcadis-us.com

ARCADIS

ENVIRONMENTAL

Subject

Schlumberger Technology Corporation, Twelvemile Creek Restoration Project Pickens County, South Carolina
October 2011 Sampling Results Report

Dear Mr. Stoudemiré:

On behalf of Schlumberger Technology Corporation (STC), ARCADIS is providing a summary of sampling results for the Twelvemile Creek Restoration Project in Pickens County for the month of October 2011 in accordance with the October 15, 2009 letter from Butch Swygert of South Carolina Department of Health and Environmental Control (SCDHEC) to Chris Moody of ARCADIS, as revised in the August 16, 2011 letter from Jeffrey P. deBessonet of SCDHEC, and the March 11, 2010 SCDHEC construction operation approval memorandum. The August 16, 2011 letter modified the monitoring requirements based on reduced flow through the water treatment plant following completion of hydraulic dredging. Modifications included removing chronic whole effluent toxicity (WET) testing and converting 24-hour composite samples to grab samples.

Table 1 contains the water treatment plant flow for the month of October. This data is recorded onsite and is reviewed by a South Carolina certified water treatment plant operator. The maximum daily discharge to Twelvemile Creek for October 2011 was 0.09 million gallons per day (MGD) on October 3. The average discharge to Twelvemile Creek from the water treatment plant for the month of October was 0.02 MGD. As of August 3, only two of the original six treatment trains remain active.

Table 2 contains the results of the analyses described in Table 1 of the October 15, 2009 letter that were performed on the water treatment plant effluent during the month of October 2011. All samples collected were grab samples as required by the August 16, 2011 letter. The Laboratory Services Reports from Rogers & Callcott Laboratory Services related to these tests are provided in Attachment A. The samples were analyzed for pH, temperature, total suspended solids and PCBs.

Date

November 17, 2011

Contact:

Lance S. Ketcham

Phone:

315.671.9163

lance.ketcham@ arcadis-us.com

Our ref: MT001019 **ARCADIS**

Mr. Dale Stoudemire November 17, 2011

Results were within the ranges outlined in the October 15, 2009 letter for the listed parameters.

Table 3 summarizes the results of the acute WET testing received from Rogers & Callcott Laboratory Services. The results from the October 2011 acute WET testing passed and the Laboratory Services Report is provided in Attachment B.

If you have any questions on the above, please feel free to contact me.

Sincerely,

ARCADIS

Lance S. Ketcham Principal Engineer

LSK/amm

Copies:

Melinda Vickers, SCDHEC Eric Kim, SCDHEC Du'Bois J. Ferguson, STC Gary Odom, STC J. Paul Doody, ARCADIS

ARCADIS

Tables

Täble 1. Daily Flow from Water Treatment Plant for October 2011. Twelvemile Creek Restoration Project, Pickeris County

Date	Flow, MGD
Monthly Avg ¹	MR
Daily Max 1	MR
10/1/2011	0.03
10/2/2011	0
10/3/2011	0.09
10/4/2011	0.06
10/5/2011	_0.04
10/6/2011	0.05
10/7/2011	0.04
10/8/2011	0
10/9/2011	, 0
10/10/2011	0
10/11/2011	0.02
10/12/2011	0.03
10/13/2011	0.04
10/14/2011	0.05
10/15/2011	0.02
10/16/2011	0.02
10/17/2011	0.03
10/18/2011	0.03
10/19/2011	0.02
10/20/2011	0:01
10/21/2011	0
10/22/2011	0.02
10/23/2011	0
10/24/2011	0.04
10/25/2011	0.02
10/26/2011	0.03
10/27/2011	0.02
10/28/2011	0.02
10/29/2011	,O
10/30/2011	0
10/31/2011	0.01
Total Discharge to	
Twelvemile Creek	0.7
Days per Month	31
Average Discharge	0.02

Notes:

- 1. The flow rates shown are recorded by a South Carolina certified wastewater treatment plant operator in the water treatment plant flow log maintained onsite.

 A flow rate of 0 MGD is shown in this table when no flow is recorded in the flow log for that day.
- 2. On 7/24/2011, three of the six process trains (trains D, E, and F) were taken offline and the meters removed. On 8/3/11, train A was taken offline.
- 3. Bolded value is the maximum daily discharge recorded.

Superscript Notes:

¹ Discharge reporting guidelines are outlined in the 10/15/2009 letter from Butch Swygert (South Carolina Department of Health and Environmental Control) to Chris Moody (ARCADIS).

Acronyms and Abbreviations:

Avg - average

Max - maximum

MGD - million gallons per day

MR - monitor and report

Table 2, Weekly Effluent Sampling Result for October 2011. Twelvemile Creek Restoration Project, Pickens County

		Sample	14/I	Sample Date and		Temp. (°C)	TSS (mg/L)	PCB (µg/L)								
Sample Number	LOCATION:	Type	Week	Time	рH			PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260		
Monthly Avg.	<u> </u>	_	-	-	6.0 to 8.5	-	25	0.5	0.5	0.5	0:5	0.5	0.5	0.5		
Dally Mex.	-	-		-	6.0 to 8.5		45	0.5	0:5	0.5	0.5	0:5	0.5	0.5		
AD10915	WTP Effluent Discharge	G	1	10/4/2011 09:20	6.3	18.0	NA NA	NA:	: NA	NA	NA:	. NA	. NA	NA		
AD10916	WTP Effluent Discharge	G		10/4/2011 09:15	NA	NA	2:8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		
AD11458	WTP Effluent Discharge	G	2	10/11/2011 09:10	6.3	18:7	NA	NA	NA	NA	NA.	NA .	NA	NA		
AD11459	WTP Effluent Discharge	G	•	10/11/2011 09:05	NA	ŅA	_ 7.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		
AD11903	WTP Effluent Discharge	G	3	10/18/2011 09:20	6.3	19.8	NA	NA	NA	NA	, NA	, NA	NA .	NA.		
AD11904	WTP Effluent Discharge	G		10/18/2011 09:20	NÁ	NA NA	5.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		
AD12378	WTP Effluent Discharge	G	4	10/25/2011 09:30	8.3	18.5	NA	NA NA	NA .	NA NA	NA NA	. NA	ŅA	ÑA		
AD12379	WTP Effluent Discharge	G		10/25/2011 09:30	NÀ	NA	3:6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		
				Average	6.3	18.8	5.0	-	<u>-</u>		-	•	•	-		

Notes:

- 1. Sampling results complied from Laboratory Services Reports provided by Rogers & Callcot Laboratory, Services and submitted in tabular form as required per the 10/15/2009 letter from Butch Swygert (South Carolina Department of Health and Environmental Control (SCDHEC)) to Chris Moody (ARCADIS) and the 3/11/2010 SCDHEC construction and operational approval memorandum.
- 2. The monthly average includes non-detect readings as indicated by "<" (if applicable) and assumes a value equal to the detection limit. Monthly averages are not calculated for parameters without a detected concentration (indicated by "-").

Superscript Note:

1 Discharge reporting guidelines and limits are outlined in the 10/15/2009 letter from Butch Swygert (SDHEC) to Chris Moody (ARCADIS)

Acronyms and Abbreviations:

°C - degrees centigrade G - grab sample µg/L - micrograms per litter mg/L - milligrams per litter MA - not analyzed 'PCB - polychlorinated biphenyl

Table 3. Whole Effluent Toxicity Result for October 2011. Twelvemile Creek Restoration Project, Pickens County

WET Analysis	Monthly Average	Daily Maximum	Results
Ceriodaphnia dubia Acute WET @ ATC=35.5%		0 ²	0

Notes:

1. A grab sample (AD10818) for acute WET testing was collected on 10/4/2011 as required by the 8/16/2011 letter.

Supérscript Notes:

- 1 Discharge reporting guidelines and limits are outlined in the 10/15/2009 letter from Butch Swygert (South Carolina Department of Health and Environmental Control) to Chris Moody (ARCADIS) as revised in the 8/16/2011 letter.

 A results of "0" indicates a passing result.

Acronyms and Abbreviations:

WET - whole effluent toxicity

ARCADIS

Attachments

ARCADIS

Attachment A

Laboratory Services Report: October 15, 2009 Table 1 Analyses



AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project

Attention Gary Odom by email

Date Received:

10/04/2011

Time Received:

13:08

Date Reported:

10/06/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD10915

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 10/04/2011 at 09:20

AD10916

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 10/04/2011 at 09:15

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

authorized signature

Results reviewed by:

Carbon copy: Email to Schlumberger TMC Group

Sample Number	Sample Description, Date and Time Collected Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 10/04/2011 at 09:20												
AD10915													
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method						
pH (Field)	6.3	pH units		0.1	10/04/2011 09:20	LRW	SM 4500HB						
Temperature (Field)	18.0	degrees C	:	0.1	10/04/2011 09:20	LRW	SM 2550B						

Sample Number S	ample Description, D	ate and Time	e Collected											
AD10916 S	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 10/04/2011 at 09:15													
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method							
3 to 5 day turn around	Completed				10/06/2011 00:00									
Total Suspended Solids	2.8	mg/l		2.0	10/04/2011 13:45	JLA	SM 2540D							
Polychlorinated Biphenyls (PCBs)		•		•										
PCB-1016	< RĎL	ug/l		0.5	10/05/2011 16:39	RKH	EPA 608							
PCB-1221	. < R <u>D</u> L	ug/l	•	0.5	10/05/2011 16:39	RKH	EPA 608							
PCB-1232	< RDL	uġ/l		0.5	10/05/2011 16:39	RKĤ	EPA 608							
PCB-1242	< RDL	ug/l		0.5	10/05/2011 16:39	RKH	EPA 608							
PCB-1248	< RDL	ug/l		0.5	10/05/2011 16:39	RKH	EPA 608							
PCB-1254	< RDL	ug/l		0.5	10/05/2011 16:39	RKH	EPA 608							
PCB-1260	< RDL	ug/I	· :	0.5	10/05/2011 16:39	RKH	EPA 608							
2,4,5,6-Tetrachioro-m-xylene, (Surro	gate 104	%		0	10/05/2011 16:39	RKH	EPA 608							
Decachlorobiphenyl, (Surrorate)	96	%		0	10/05/2011 16:39	RKH	EPA 608							
Liquid-liquid Extraction Pest/PCB 60	8: Completed .		•	•	10/04/2011 14:00	DBB	EPA 608							

ROGERS & CALLCOTT

CHAIN OF CUSTODY RECORD

TA BOT	RATORY SERVICES								
	Greenville, SC 29606		1	NN	/ / Filtered (Yes/No)				
Phone (864) 232	2-1556 Fax (864) 232-6140 ss: 426 Fairforest Way			////	/// / Cooled (Yes/No)				
	Greenville, SC 29607	į	ſ₽	16/7	/ / Container Type (P/G)				
Client Name SHLUM	IBUR CER	1.	YC.	2×21/	/// Container Volume				
Address			[G/C		/ / Sample Type (<u>Crab/Composite</u>)				
			/NW/WI	V / /	/ / Sample Source (WW, GW, DW, Other)				
Report To:			[N/N]		Sample Source Chlorinated (Yes/No)				
Telephone No.	FAX No.	gers	INA WEG		/ / Lab Receipt Cl. Check Mcs./				
PO No	Project No	Containers	NA/7/		/ Lab Receipt pH Check //0-G-//				
F 0 No.	Project No.,] & 	AA		Preserved (Code)				
Rogers & Yr	Canala Danadaklar				A-None D-NgOH G-Baria Acid B-HNO, E-HCL H-Ascorbic Acid				
Callcott Time	Sample Description	Total Number	20		C-H,SO, F-No,S,O, I				
	•		125 125 125		COMMENTS:				
	•	Total							
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Relinquished/by (Sig.)	Dotey line 2 Co.L.	112000	1 1 1	/Time	KNOWN HAZARDS ASSOCIATED WITH SAMPLES				
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3	#								
Relinquished by (Slg.)	Relinquished by (Sig.) Dote/Time Received by (Sig.)				Temperature of blank or representative sample				
5	Shipper Name &	#	1		At time of collection°C				
	ocvd. Intact by Seal #	at'chd by	Recvd. I	ntact by	At time of lab receipt 6.4 °C				
Form Revised July 2008					R/C COC FORM				



AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project

Attention Vic Cocianni

Date Received:

10/11/2011

Time Received:

11:59

Date Reported:

10/13/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD11458

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 10/11/2011 at 09:10

AD11459

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 10/11/2011 at 09:05

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have compiled with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

any 2 amley

Results reviewed by:

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

Sample Number	Sample Description,	Sample Description, Date and Time Collected											
AD11458	Schlumberger Techno at 09:10	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 10/11/201 at 09:10											
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method						
pH (Field)	6.3	pH units		0.1	10/11/2011 09:10	LRW	SM 4500HB						
Temperature (Field)	18.7	degrees C		0.1	10/11/2011 09:10	LRW	SM 2550B						

Sample Number Sample Number	ample Description, Do	ite and Tin	<u>ie Collect</u>	<u>ed</u>		17					
	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 10/ at 09:05										
Parameter	Result	Unit		Flag	RDL	Date/Time	Analyst	Method			
3 to 5 day turn around	Completed	·	 	· · · · · · · · · · · · · · · · · · ·	 	10/13/2011 00:0	0	i di Liddel sun di kons			
Total Suspended Solids	7.8	mg/l			2.0	10/11/2011 15:0	0 JLA	SM 2540D			
Polychlorinated Biphenyls (PCBs) PCB-1016	< RDL	ug/l		:	0.5	10/13/2011 00:0	0 RKH	EPA 608			
PCB-1221	< RDL	ug/l			0.5	10/13/2011 00:0	0 RKH	EPA 608			
PCB-1232	< RDL	ug/l			0.5	10/13/2011 00:0	Ö. RKH	EPA 608			
PCB-1242	< RDL	ug/l	é		0.5	10/13/2011 00:0	0 RKH	EPA 608			
PCB-1248	< RDL	ug/l	. :	:	0.5	10/13/2011 00:0	0 RKH.	EPA 608			
PCB-1254	< RDL	ug/I		!	0.5	10/13/2011 00:0	0 RKH	EPA 608			
PCB-1260	< RDL	ug/l			0.5	10/13/2011 00:0	0 RKH	EPA 608			
2,4,5,6-Tetrachloro-m-xylene, (Surro	gate 95	%			0	10/13/2011 00:0	0 RKH	EPA 608			
Decachlorobiphenyl, (Surrorate)	. 75	%			. 0	10/13/2011 00:0	0 RKH	EPA 608			
Liquid-liquid Extraction Pest/PCB 60	8 Completed		•			10/12/2011 08:0	0 CGW	EPA 608			



ROGERS & CALLCOTT

CHAIN OF CUSTODY RECORD

PAGE ____ OF ___

			I A	BORATORY SERV	VICES	_														
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		والملا		64) 232-1556 Fax (864) 232-6 Address: 426 Fairforest Way	140	İ				<u>/</u> y	$\sqrt{}$			\mathcal{I}			Cooled	(Yes,	/No)	
		,	<u> </u>	Greenville, SC 29607						[P]	/G	/		7 -	/ /	/ c	on taine	er Type	(P/G)	
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AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project Attention Virgilio Cocianni by email

Date Received:

10/18/2011

Time Received:

12:20

Date Reported:

10/20/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD11903

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 10/18/2011 at 09:20

AD11904

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 10/18/2011 at 09:20

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

my & ashley

Results reviewed by:

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

Sample Description, Date and Time Collected											
		ology TMC Water T	reatment Pla	ant Effluen	t Discharge grab, o	ollected on	10/18/2011				
	Result	Unit	Flag	RDL	Date/Time	Analyst	Method				
	6.3	pH units		0.1	10/18/2011 09:20	LRW	SM 4500HB				
•	19.8	degrees C		Ò.1	10/18/2011 09:20	LRW	SM 2550B				
	Schlu	Schlumberger Technological O9:20 Result 6.3	Schlumberger Technology TMC Water To at 09:20 Result Unit 6.3 pH units	Schlumberger Technology TMC Water Treatment Pla at 09:20 **Result Unit Flag** 6.3 pH units	Schlumberger Technology TMC Water Treatment Plant Effluen at 09:20 Result Unit Flag RDL 6.3 pH units 0.1	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, or at 09:20 Result Unit Flag RDL Date/Time 6.3 pH units 0.1 10/18/2011 09:20	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on at 09:20 Result Unit Flag RDL Date/Time Analyst 6.3 pH units 0.1 10/18/2011 09:20 LRW				

Sample Number S	ample Description, Da	te and Time	<u>Collected</u>				
	chlumberger Technolo t 09:20	gy TMC Wate	r Treatment Pla	ant Effluer	it Discharge grab, c	ollected on	10/18/2011
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method
3 to 5 day turn around	Completed				10/20/2011 00:00		· · · · · · · · · · · · · · · · · · ·
Total Suspended Solids	5.8	mg/l	4	2.0	10/18/2011 14:25	JLA	SM 2540D
Polychlorinated Biphenyls (PCBs) PCB-1016	< RDL	ug/l		0.5	10/20/2011 04:43	RKH	EPA 608
PCB-1016	• * •						
PCB-1221	< RDL	ug/i		0.5	10/20/2011 04:43	RKH	EPA 608
PCB-1232	< RDL	·ug/l		0.5	10/20/2011 04:43	RKH	EPA 608
PCB-1242	< RDL	ug/l	•	0.5	10/20/2011 04:43	RKH	EPA 608
PCB-1248	< RDL	ug/l		0.5	10/20/2011 04:43	RKH	EPA 608
PCB-1254	< RDL	ug/l	*	0.5	10/20/2011 04:43	RKH	EPA 608
PCB-1260	< RDL	ug/l		0.5	10/20/2011 04:43	RKH	EPA 608
2,4,5,6-Tetrachloro-m-xylene, (Surro	gate 90	%	•	Ò	10/20/2011 04:43	RKH	EPA 608
Decachlorobiphenyl, (Surrorate)	88	%		0	10/20/2011 04:43	RKH	EPA 608
Liquid-liquid Extraction Pest/PCB 60	8 Completed				10/18/2011 13:30	ĎΒΒ	EPA 608



CHAIN OF CUSTODY RE	:C	ORD
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			Greenville, SC 29607	_ '		-1		1	P1/[Y/ /			/ Cor	ntainer Typ	e (P/G)	
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Rogers & Callcott	1	Time	Somple Des	cription	ber o	82							A-None B-HNO, C-H ₂ SO,	D-NoOH E-HCL F-No, S,O,	G-Boric Aci H-Ascorbic I-	
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AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project Attention Virgilio Cocianni by email

Date Received:

10/25/2011

Time Received:

12:15

Date Reported:

10/27/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD12378 Sch

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab.

collected on 10/25/2011 at 09:30

AD12379

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 10/25/2011 at 09:30

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Rebecca L. Musical authorized signature

Results reviewed by:

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

EXPLANATION OF REPORT SYMBOLS AND ABBREVIATIONS

The following defines common symbols and abbreviations used in reporting technical data:

Less than
 Greater than
 mg/L, mg/kg
 Units of concentration in milligrams per liter for liquids, and milligrams per kilogram for solids. Also referred to as parts per million.

μg/L, μg/kg

Units of concentration in micrograms per liter for liquids, and micrograms per kilogram for solids. Also referred to as parts per billion.

RDL

Reported detection limit

CFU Colony forming unit

TNTC Too numerous to count

MSL Mean sea level

NTU Nephelometric turbidity units

umhos/cm Units of specific conductance expressed in micromhos per centimeter

°C, °F Units of temperature expressed in degrees Celsius or degrees Fahrenheit.

mgd, gpd Measure of flow in million gallons per day (mgd) or gallons per day (gpd).

Surrogate Compound added by the laboratory for quality control monitoring.

Data Qualifiers:

Estimated value

Q Laboratory specific qualifier - refer to case narrative or client notification form.

K The sample was analyzed beyond the accepted holding time.

B. Analyte was also detected in the method blank.

X Result subject to sample matrix interference. Reported detection limit has been adjusted where applicable.

Z Defined in comments. If there are multiple comments, the "Z" may be followed by a number designation.

E Estimated value - the analyte was detected at concentrations greater than the calibration range.

E1 Estimated value - falls below countable plate range.

S The matrix spike and / or matrix spike duplicate sample recovery was not within control limits.

S1 The matrix spike and / or matrix spike duplicate sample recovery was not within control limits due to matrix interference.

P The RPD between the sample / duplicate or matrix spike / spike duplicate was not within quality control limits.

P1 The RPD between the sample / duplicate or matrix spike / spike duplicate was not within quality control limits due to sample matrix

interference.

R The surrogate was not within quality control limits.

RI The surrogate was not within quality control limits due to matrix interference.

L The analyte in the LCS was not within control limits.

Due to a discrepancy between the BOD and COD results, the BOD has been reported as less than the COD value.

A. Reporting limit has been adjusted due to limited sample volume.

<u>LIMITATION OF LIABILITY</u> - The accuracy of all analytical results is for the sample as is received by the laboratory. The integrity of the sample begins at the time it is placed in the possession of authorized Rogers and Callcott Engineers, Inc. laboratory personnel. All warranties, expressed, or implied, are disclaimed. Liability is limited to the cost of the analyses.

SAMPLE RETURN POLICY - Rogers and Callcott Engineers, Inc. reserves the right to charge a sample disposal fee or to return samples to the client.

Sample Number	Sample Description, 1	Sample Description, Date and Time Collected												
AD12378	Schlumberger Techno at 09:30	logy TMC Water T	reatment Pl	ant Efflueni	Discharge grab, c	ollected on	10/25/2011							
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method							
pH (Field)	6.3	pH units		0.1	10/25/2011 09:30	LRW	SM 4500HB							
Temperature (Field)	18.5	degrees C		0.1	10/25/2011 09:30	LRW	SM 2550B							

Sample Number	Sample Description, D	ate and Time C	Collected .								
	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 10/25/2011 at 09:30										
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method				
3 to 5 day turn around	Completed				10/27/2011 00:00						
Total Suspended Solids	3.6	mg/li		2.0	10/25/2011 14:20	JLÁ	SM 2540D				
Polychlorinated Biphenyls (PCBs)						-1	. "				
PCB-1016	< RDL	ug/l	1	0.5	10/26/2011 22:49	RKH	EPA 608				
PCB-1221	< RDL	ug/l		0.5	10/26/2011 22:49	RKH	EPA 608				
PCB-1232	< RDL	ug/l		0.5	10/26/2011 22:49	RKH	EPA 608				
PCB-1242	< RDL	ug/l		0.5	10/26/2011 22:49	ŘКН	EPA 608				
PCB-1248	< RDL	ug/l	•	0.5	10/26/2011 22:49	RKH	EPA 608				
PCB-1254	< RDL	ug/l		0.5	10/26/2011 22:49	RKH	EPA 608				
PCB-1260	< RDL	ug/l		0.5	10/26/2011 22:49	RKH	EPA 608				
2,4,5,6-Tetrachloro-m-xylene, (Sun	rogate 92	%	· . :	Ō.	10/26/2011 22:49	RKH:	EPA 608				
Decachlorobiphenyl, (Surrorate)	84	%		.0	10/26/2011 22:49	RKH	EPA 608				
Liquid-liquid Extraction Pest/PCB 6	08 Completed		·		10/25/2011 12:45	CGW	EPA 608				

ROGERS & CALLCOTT

CHAIN OF CUSTODY RECORD

PAGE _____OF ____

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ARCADIS

Attachment B

Laboratory Services Report: Whole Effluent Toxicity Testing



AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project

Attention Vic Cocianni

Date Received:

10/04/2011

Time Received:

13:31

Date Reported:

10/14/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description



AD10818

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 10/04/2011 at 09:15

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Reberea & Musick

Results reviewed by:

an

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

Sample Number

Sample Description, Date and Time Collected

AD10818

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 10/04/2011 at 09:15

Parameter

Result Unit Flag RDL Date/Time Analyst Method

Subcontracted Sample Analysis

Completed

10/14/2011 00:00

Analysis comment for Subcontracted Sample Analysis: See enclosed subcontract report which includes a total of 4 pages for Acute Toxicity from ETT Environmental Inc.



P.O. Box 16414, Greenville, SC 29606

Craftsman Court, Greer, SC 29850

Ceriodaphnia dubia 48 Hour Acute Pass/Fail Test

EPA-821-R-02-012 Method 2002

Facility: Schlumberger / 12 Mile Creek Sample ID: Effluent

Test Date: October 4, 2011

ETT Laboratory ID# T38598 Rogers and Callcott Laboratory ID# AD10818

Test Reviewed and Approved By:

Robert W. Kelley

Robert W. Kelley, Ph.D. Laboratory Manager

nelac Certification #E87819 (FL)

Test results presented in this report conform to all requirements of NELAC, conducted under NELAC Certification Number E87819 Florida Dept, of Health, Included results pertain only to provided samples.

SCDHEC Certification #23104

NCDENR Certification #022

DMR Attachment for Toxicity Test Results. Bureau of Water

Final Limits:			Permit nui				Discharge #:						
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Signature of Principal Ex				-	•								

STATISTICAL ANALYSIS RESULTS

Facility: SCHLUMBERGER	NPDES#	SC.		
Sample ID: EFFLUENT	ETT#T38598	Date:	04-Oct-11	
Laboratory: ETT Environmental, Inc.	Certification #: 23104		Exp. Date:	10/4/2011

	48 Hrs. Survival	Test Used:	Fisher's Test	
Control	100%	Test Statistic:	P=	1.000
Effluent	100%	Critical Value:	P =	0.05

ROGERS&CALLCOTT

HAIN OF CUSTODY RECORD

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Columbia, South Carolina 29201

Mr. Dale Stoudemire, Manager South Carolina Department of Health and Environmental Control Bureau of Water/Water Pollution Control Division Data Management Section 2600 Bull Street ARCADIS 6723 Towpath Road P.O. Box 66 Syraciuse New York 13214-0066 Tel 315 446 9120 Fax 315 449 0017 www.arcadis-us.com

ENVIRONMENTAL

Subject:

Schlumberger Technology Corporation, Twelvemile Creek Restoration Project Pickens County, South Carolina
November 2011 Sampling Results Report

Dear Mr. Stoudemire:

On behalf of Schlumberger Technology Corporation (STC), ARCADIS is providing a summary of sampling results for the Twelvemile Creek Restoration Project in Pickens County for the month of November 2011 in accordance with the October 15, 2009 letter from Butch Swygert of South Carolina Department of Health and Environmental Control (SCDHEC) to Chris Moody of ARCADIS, as revised in the August 16, 2011 letter from Jeffrey P. deBessonet of SCDHEC, and the March 11, 2010 SCDHEC construction operation approval memorandum. The August 16, 2011 letter modified the monitoring requirements based on reduced flow through the water treatment plant following completion of hydraulic dredging. Modifications included removing chronic whole effluent toxicity (WET) testing and converting 24-hour composite samples to grab samples.

Table 1 contains the water treatment plant flow for the month of November. This data is recorded onsite and is reviewed by a South Carolina certified water treatment plant operator. The maximum daily discharge to Twelvemile Creek for November 2011 was 34,100 gallons per day on November 29. The average discharge to Twelvemile Creek from the water treatment plant for the month of November was approximately 14,000 gallons per day. As of November 15, one of the six original treatment process trains remains in use for water treatment.

Table 2 contains the results of the analyses described in Table 1 of the October 15, 2009 letter that were performed on the water treatment plant effluent during the month of November 2011. All samples collected were grab samples as required by the August 16, 2011 letter. The Laboratory Services Reports from Rogers & Callcott Laboratory Services related to these tests are provided in Attachment A. The samples were analyzed for pH, temperature, total suspended solids and PCBs.

Date

December 21, 2011

Contact:

Lance S. Ketcham

Phone:

315.671.9163

Emāil:

lance.ketcham@ arcadis-us.com

Our ref: MT001019

Imagine the result

ARCADIS

Mr. Dale Stoudemire December 21, 2011

Results were within the ranges outlined in the October 15, 2009 letter for the listed parameters.

Table 3 summarizes the results of the acute WET testing received from Rogers & Callcott Laboratory Services. The results from the November 2011 acute WET testing passed and the Laboratory Services Report is provided in Attachment B.

If you have any questions on the above, please feel free to contact me.

Sincerely,

ARCADIS

Lance S. Ketcham Principal Engineer

LSK/amm

Copies:

Melinda Vickers, SCDHEC Eric Kim, SCDHEC Du'Bois J. Ferguson, STC Gary Odom, STC J. Paul Doody, ARCADIS

ARCADIS

Tables

Table 1. Daily Flow from Water Treatment Plant for November 2011. Twelvemile Creek Restoration Project, Pickens County

Date	Flow, gal/day
Moπthly Avg ¹	MR
Daily Max 1	MR
11/1/2011	27,800
11/2/2011	19,800
11/3/2011	22,300
11/4/2011	14,200
11/5/2011	0
11/6/2011	0
11/7/2011	8,400
11/8/2011	25,400
11/9/2011	20,000
11/10/2011	5,100_
11/11/2011	22,300
11/12/2011	0
11/13/2011	0
11/14/2011	7,700
11/15/2011	12,100
11/16/2011	13,800
11/17/2011	18,300
11/18/2011	26,200
11/19/2011	23,200
11/20/2011	20,300
11/21/2011	6,200
11/22/2011	15,600
11/23/2011	13,400
11/24/2011	
11/25/2011	0
11/26/2011	0
11/27/2011	00
11/28/2011	28,200
11/29/2011	34,100
11/30/2011	29,400
Total Discharge to	
Twelvemile Creek	413,800
Days per Month	30
Average Discharge (approximate)	13,800

Notes:

- 1. The flow rates shown are recorded by a South Carolina certified wastewater treatment plant operator in the water treatment plant flow log maintained onsite.

 A flow rate of 0 gal/day is shown in this table when no flow is recorded in the flow log for that day.
- 2. On 7/24/2011, three of the six process trains (trains D, E, and F) were taken offline and the meters removed. On 8/3/11, train A was taken offline.
 On 11/15/11, train B was taken offline.
- 3. Bolded value is the maximum daily discharge recorded.

Superscript Notes:

¹ Discharge reporting guidelines are outlined in the 10/15/2009 letter from Butch Swygert (South Carolina Department of Health and Environmental Control) to Chris Moody (ARCADIS).

Acronyms and Abbreviations:

Avg - average

gal/day - gailons per day

Max - maximum

MR - monitor and report

Table 2. Weekly Effluent Sampling Result for November 2011. Twelvemile Creek Restoration Project, Pickens County

		Sample	144	Sample Date and	11	T 400)	TC0 / II \				PCB (µg/L))	0.5 0.5 0.6 0.5 0.5 0.5 NA NA NA <0.5 <0.5 <0.5 NA NA NA <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 NA NA NA NA NA NA NA NA NA NA	
Sample Number	Location	Туре	Week	Time	pН	remp:.(*C)	199 (mg/L)	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260
Monthly Avg.	-	-		-	6.0 to 8.5	-	25	0.5	0.5	0.5	0.5	0.5	0.5	0:5
Dally Max.		_		-	6.0 to 8.5	_	45	0.5	0.5	0.5	0.5	0.5	0.5	0.5
AD12775	WTP Effluent Discharge	G	ſ 1	11/1/2011:09:10	6.3	16.3	NA	NA NA	NA .	, NA	NA I	NA !	· NA	NA
AD12776	WTP Effluent Discharge	G	,	11/1/2011:09:10	NA	NA	4.4	<0.5	<0.5	<0.5	<0.5 □	<0.5	<0.5	<0.5
AD13315	WTP Effluent Discharge	G	. 2	11/8/2011:09:15	6.3	17.7	. NA	NA	NA -	NA.	NA I	NA	ŅA	NA
AD13316	WTP:Effluent:Discharge	G	i	11/8/2011/09:15	NA :	NA	5.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0:5
AD13940	WTP Effluent Discharge	G	3	11/15/2011 09:15	6.2	18.9	. NA	l NA	NA .	NA .	. NA	NA I	: INA	NA.
AD13941	WTP-Effluent-Discharge	G		11/15/2011 09:15	NA	,NA	5.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
AD14459	WTP Effluent Discharge	G	. 4'	11/22/2011 08:55	6.2	18.6	NA NA	. NA	NA I	NA .	NA.	NA .	, NA	
AD14460	WTP:Effluent/Discharge	G	i	11/22/2011 08:55	NA .	NA .	5.4	<0.5	<0.5	<0.5	<0.5	√ 0.5	<0.5	
AD14723	WTP Effluent Discharge	G	5	11/29/2011 09:10	6.2	16:1	NA	NA	NA:	. NA	NA .	NA NA	NA	NA
AD14724	WTP:Effluent:Discharge	G		11/29/2011 09:10	NA -	ŃĄ	i. 3.8	<0.5	<0.5	₹0.5	<0.5	<0.5	<0.5	<0.5
				Average	6.2	17.5	5.0	-	- 1		- "	-	-	-

Notes:

- 1: Sampling results complied from Laboratory Services Reports provided by Rogers & Callcot Laboratory Services and submitted in tabular form as required per the 10/15/2009 letter from Butch Swygert (South Carolina Department of Health and Environmental Control (SCDHEC)) to Chris Moody (ARCADIS) and the 3/11/2010 SCDHEC construction and operational approval memorandum.
- 2. The monthly average includes non-detect readings as indicated by "<" (if applicable) and assumes a value equal to the detection limit. Monthly averages are not calculated for perameters without a detected concentration (indicated by "-").

Superscript Note:

Discharge reporting guidelines and limits are outlined in the 10/15/2009 letter from Butch Swygert (SDHEC) to Chris Moody (ARCADIS)

Acronyms and Abbreviations:

°C - degrees centigrade

G - grab sample

µg/L - micrograms per liter

mg/L - milligrams per liter

NA - not analyzed

PCB - polychlorinated biphenyl

Temp. - temperature

Table 3. Whole Effluent Toxicity Result for November 2011. Twelvemile Creek Restoration Project, Pickens County

WET Analysis	Monthly Average	Daily Maximum'	Results
Ceriodaphnia dubia Acute WET @ ATC=35.5%		_0²	0

Notes

1. A grab sample (AD12743) for acute WET testing was collected on 11/01/2011 as required by the 8/16/2011 letter.

Superscript Notes:

¹ Discharge reporting guidelines and limits are outlined in the 10/15/2009 letter from Butch Swygert (South Carolina Department of Health and Environmental Control) to Chris Moody (ARCADIS) as revised in the 8/16/2011 letter.

² A results of "0" indicates a passing result.

Acronyms and Abbreviations:

WET - whole effluent toxicity

ARCADIS

Attachments

ARCADIS

Attachment A

Laboratory Services Report: October 15, 2009 Table 1 Analyses



AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project Attention Virgilio Cocianni by email

Date Received:

11/01/2011

Time Received:

12:19

Date Reported:

11/04/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD12775

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/01/2011 at 09:10

T LEGICIO, NOTICE LEGICAÇÃO ROMA MARIA MARIA ANTICAL

AD12776

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/01/2011 at 09:10

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

authorized signature

Results reviewed by:

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

This report may not be reproduced, except in full, without written permission from Rogers & Callcott, Inc.

Sample Number	Sample Description, L	ate and Time Col	lected				and and the second seco
AD12775	Schlumberger Technol at 09:10	ogy TMC Water Ti	reatment Pla	ant Ēffluen	t Discharge grab, c	ollected on	11/01/2011
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method
pH (Fleid)	6.3	pH units		0.1	11/01/2011 09:10	LRW	SM 4500HB
Temperature (Field)	16.3	degrees C	1	0.1	11/01/2011 09:10	LRW	SM 2550B

Sample Number S	ample Description, De	ate and Time C	Collected									
	chlumberger Technolo t 09:10	umberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/01/2011 9:10										
Parameter	Result	Unit	Flag	<u>RDL</u>	Date/Time	Analyst	Method					
3 to 5 day turn around	Completed				11/04/2011 00:00							
Total Suspended Solids	4.4	mg/l		2.0	11/01/2011 15:15	JLA	SM 2540D					
Polychlorinated Biphenyls (PCBs)	•		·	•								
PCB-1016	< RDL	ug/l		0.5	11/03/2011 01:01	RKH	EPA 608					
PCB-1221	< RDL	ug/l		0.5	11/03/2011 01:01	RKH	EPA 608					
PCB-1232	< RDL	ug/l		0.5	11/03/2011 01:01	RKH	EPA 608					
PCB-1242	< RDL	ug/l		0.5	11/03/2011 01:01	ŔКН	EPA 608					
PCB-1248	< RDL	ug/l	,	0.5	11/03/2011 01:01	RKH	EPA 608					
PCB-1254	< RDL	ug/l		0.5	11/03/2011 01:01	RKH	EPA 608					
PCB-1260	< RDL	ug/l		0.5	11/03/2011 01:01	RKH	EPA 608					
2,4,5,6-Tetrachloro-m-xylene, (Surro	ogate 93	%	•	Ö	11/03/2011 01:01	RKH	EPA 608					
Decachlorobiphenyl, (Surrorate)	79	%		0	11/03/2011 01:01	RKH	EPA 608					
Liquid-liquid Extraction Pest/PCB 60	8 Completed				11/01/2011 13:00	CGW	EPA 608					



CHAIN OF CUSTODY RECORD

PAGE ____OF ___

	5655, Greenville, SC 29608	!			7 _N	7N7	/ / Filtered (Yes/No)
Phone (8 Shipping	64) 232-1556 Fax (864) 232-6140 Address: 426 Fairforest Way	1			1/1	1/	Cooled (Yes/No)
	Greenville, SC 29607				10/1	1/	Container Type (P/G)
Client Name Sch	um Belcer			//	46/24	41	/ / Container Volume
Address			(7 -	/ /	Sample Type (Grab/Composite)
			1		WN/	7	Sample Source (WW, GW, DW, Other
Report To:		lľ	•	N	N/	11	Sample Source Chlorinated (Yes/No
Telephone No.	FAX No	lers	NATION				Lab Receipt Cl, Check Mtal
PO No		Containers	<u></u>	76 Jan			Lab Receipt pH Check
10 110.		3		AA			Preserved (Code)
Rogers & Yr.// Callcott Lab No. Date	Sample Description		SE .	00			A-None D-NoOH G-Boric Acid B-HNO, E-HCL H-Ascorbic Acid C-H ₂ SO ₄ F-No ₂ S ₂ O ₃ i-
LOO NO.		Total Numbe	PARAMETERS	2 3			COMMENTS:
		Tot	Z /				AD12775
01274 1/1 0910	WATER TRESTMENT PLANT	2		, ,-	7		DH 6.3 GRABTAK
	EFF. Disch.		Γ				TAMP/630 + READED 91
							political B-R+C
		1000					
SAMPLER)	Date/Time Received by (Sig				Date/Tin	ne	KNOWN HAZARDS ASSOCIATED WITH SAMPLES
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Relinquished by (Sig.)	Date/Time Received by (Sig.		-	· · · · · ·	ote/Tin	ne	
3	Shipper Name &			<u> </u>			
Relinquished by (Sig.)	Date/Time Received by (Sig.				ote/Tin	ne	Temperature of blank or representative sample
⑤	Shipper Nome &						At time of collection°C At time of lab receipt°C
Seal # at chd by O	Recvd. Intact by Seal #	at ch	d byC) Recv	d. Intac	t by 🔾	R/C COC FOR



AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Cllent:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project Attention Virgilio Cocianni by email

Date Received:

11/08/2011

Time Received:

12:14

Date Reported:

11/11/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD13315 Schlumberge

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/08/2011 at 09:15

HÍPRÍÐI ÁÐUR IÐU HÆRFJÆÐ HÍÐ HÍÐ ENKHÆÐ

AD13316

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/08/2011 at 09:15

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Polysca Lusick
authorized signature

Results reviewed by:

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

<u>Sample Number</u> <u>Sample Number</u>	ample Description, D	ate and Time Co	<u>llected</u>		;						
	chlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/08/2011 : 09:15										
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method				
pH (Field)	6.3	pH units	······································	0.1	11/08/2011 09:15	LRW	SM 4500HB				
Temperature (Field)	17.7	degrees C		0.1	11/08/2011 09:15	LRW	SM 2550B				
					·						
		<u> </u>		- ·							
<u>Sample Number</u> <u>Sa</u>	ample Description, D	ate and Time Co	<u>llected</u>	Y .	,		•				
	chlumberger Technolo 09:15	ogy TMC Water T	reatment Pla	ant Effluer	nt Discharge grab, c	ollected on	11/08/2011				
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method				
3 to 5 day turn around	Completed				11/11/2011 00:00	-					
Total Suspended Solids	5.6	mg/l		2.0	11/08/2011 17:20	JLA	SM 2540D				
Polychlorinated Biphenyls (PCBs) PCB-1016	< RDL	ūg/l		0.5	11/10/2011 18:21	RKH	EPA 608				
PCB-1221	< RDL	ug/l		0.5	11/10/2011 18:21	RKH	EPA 608				
PCB-1232	< RDL	ug/l	i	0.5	11/10/2011 18:21	RKH	EPA 608				
PCB-1242	< RDL	ug/l	: .	0.5	11/10/2011 18:21	ŘKH	EPA 608				
PCB-1248	< RDL	ug/l	P	0.5	11/10/2011 18:21	RKH	EPA 608				
PCB-1254	< RD <u>L</u>	.ug/i		0.5	11/10/2011 18:21	RKH	EPA 608				
·	< RDL	ug/l		0.5	11/10/2011 18:21	RKH	EPA 608				
PCB-1260	•										
PCB-1260 2,4,5,6-Tetrachloro-m-xylene, (Surro	gate 98	%		0	11/10/2011 18:21	RKH	EPA 608				

11/08/2011 13:40

Completed

Liquid-liquid Extraction Pest/PCB 608

EPA 608

CGW



ROGERS & CALLCOTT

CHAIN OF CUSTODY RECORD

]] [ABORATORY SERV	/ICES	_					,				
	P.O. Bo	x 5655, Greenville, SC 29606						L	<u> </u>	<u>N/</u>	\bot	_/	/ / Filtered (Yes/No)
44,000,000		864) 232-1556 Fax (864) 232-6 g Address: 426 Fairforest Way	140		,	•		Δ	$\mathbb{Z}_{\mathcal{A}}$	·			/ / Cooled (Yes/No)
•	,	Greenville, SC 29607	2					/ ρ	16			/	/ / Container Type (P/G)
Client Name	<u>ے کے حا</u>	Humber Ger	<u> </u>		1		K	86/	42/	. /	7	7	Container Volume
Address		·····	· · · · · · ·					>/G	7	I	\mathcal{I}	7	Sample Type (Grab/Composite)
	· 						WW	אושן					/ Sample Source (WW, GW, DW, Other)
Report To:				!	1	. [, v	N/					Sample Source Chlorinated (Yes/No)
Telephone No.		FAX No		ners	i	N	PYNE	6 /	I	\mathcal{I}	\mathcal{L}		Lob Receipt Cl. Check (177-8-7)
PO No.	•	•	•	Contoiners		MA	,	\angle					Lob Receipt pH Check
10 1101				2 2		A	A						Preserved (Code)
Callcott]] Ite	Sample Desc	ription	1 .	SE			I 3 .					A-None D-NoOH G-Boric Acid B-HNO, E-HCL H-Ascorbic Acid C-H,SO, F-No,S,O, I-
COD NO.	: 			otal Number	ARAMETERS	7.2	Soll				5 81 8 6		COMMENTS:
				٢	2							;	AD13315
13316/11	18 0915	WATERTREAT	MENT OLANIX	13		2	1	N		i.			pH63 CRABTAKEN
		EFF. DiscH											Timp1772 - Ren 0 0 0915
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SAMPLER Relinquisted ① Sun.	SISS.V	Date/Time	Received by (Sig 2) Shipper Nome &		^			-	Time				IN HAZARDS ASSOCIATED WITH SAMPLES
Relinquished		Date/Time	Received by (Sig					Date/					
o	·		Shipper Name &										
Relinquished	by (Sig.)	Date/Time	Received by (Sig	.)				ate/	Time			Tem	perature of blank or representative sample
⑤			Shipper Name &	#							į		t time of collectionC
Seal #	at'chd by	Recvd. Intact by	Seal #	at'c	chd: b	O	Recv	d. Int	act t	οyO	t . 4 .	A	t time of lab receipt 5-1-C
Form Revised	July 2008												R/C COC FORM



AN EMPLOYÉE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project Attention Virgilio Cocianni by email

Date Received:

11/15/2011

Time Received:

12:28

Date Reported:

11/17/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD13940

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/15/2011 at 09:15

AD13941

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/15/2011 at 09:15

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We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

anny & ashley

authorized signature

Results reviewed by:

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

Sample Number	Sample Description, L	ate and Time Co	<u>llected</u>	7 <u></u> - 3 11	ordinación. Il suy servici Timos em sem i		AMALIA A A A A A A A A A A A A A A A A A A					
ÄÖ13940	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/15/2011 at 09:15											
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method					
pH (Field)	6.2	pH units		0.1	11/15/2011 09:15	LRW	SM 4500HB					
Temperature (Field)	18.9	degrees C		0.1	11/15/2011 09:15	LRW	SM 2550B					

Sample Number Se	ample Description, Da	ite and Time Co	llected '				:							
	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/15/2011 at 09:15													
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method							
3 to 5 day turn around	Completed		*****		11/17/2011 00:00									
Total Suspended Solids	5.6	mg/l		2.0	11/15/2011 14:50	JLA	SM 2540D							
Polychlorinated Biphenyls (PCBs)						ţ								
PCB-1016	< RDL	ug/l		0.5	11/16/2011 23:07	RKH	EPA 608							
PCB-1221	< RDL	uġ/l	• •	0.5	11/16/2011 23:07	RKH ,	EPA 608							
PCB-1232	< RDL	ug/l		0.5	11/16/2011 23:07	RKH	EPA 608							
PCB-1242	< RDL	ug/i	ě	0.5	11/16/2011 23:07	RKH	EPA 608							
PCB-1248	< RDL	ug/l		0.5	11/16/2011 23:07	RKH	EPA 608							
PCB-1254	< RDL	ug/l		0.5	11/16/2011 23:07	RKH	EPA 608							
PCB-1260	< RDL	ug/l		0.5	11/16/2011 23:07	RKH	EPA 608							
2,4,5,6-Tetrachloro-m-xylene, (Suпо	gate 95	%		0	11/16/2011 23:07	ŘKH	EPA 608							
Decachlorobiphenyl, (Surrorate)	91	%		. 0	11/16/2011 23:07	RKH	EPA 608							
Liquid-liquid Extraction Pest/PCB 60	8 Completed				11/15/2011 14:00	CGW	EPA 608							

CHAIN OF CUSTODY RECORD

PAGE ____OF ____

P.O. Box 56 Phone (864) Shipping Ad	55, Greenville, SC 29606 232-1556 Fax (864) 232-6140 Idress: 426 Falrforest Way Greenville, SC 28607				J.G	A CA	N/N/ C/ E/ E/		Filtered (Yes/No) Cooled (Yes/No) Container Type (P/G) Container Volume Sample Type (Grab/Composite)
Telephone No.						N/ N/		//	Sample Source (WW, GW, DW, Other) Sample Source Chlorinated (Yes/No) Lab Receipt Cl, Check (Mca) Lab Receipt pH Check ///-/5-/1
Rogers & Yr// Callcott Lab No. Date	Sample Description	Total Number of Containers	PARAMETERS	4 53%	pc8 &				Preserved (Code) A-None D-NoOH G-Boric Acid B-HNO, E-HCL H-Ascerbic Acid C-H,SO, F-No,S,O, I COMMENTS: AD 3940
139141 11/15 0915 W	LATEL TEATMENT PLANT LATE. DISCH.	2		1	1	2			146,2 CARB TAKEN FEMP18.95+ READ & 0915 ON 11/15/11 By Rtc.
SAMPLER Relinquished by (Sig/) Relinquished by (Sig.)	Date/Time Received by (Sig	1)	^	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.15		Time	· 1:	OWN HAZARDS ASSOCIATED WITH SAMPLES
Relinquished by (Sig.)	Date/Time Received by (Sig 5) Shipper Name & Reced. Intact by Seal #).*) : #	hd by	0			Time		At time of lab receiptC R/C COC FORM



AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project Attention Virgilio Cocianni by email

Date Received:

11/22/2011

Time Received:

12:10

Date Reported:

11/28/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD14459

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/22/2011 at 08:55

AD14460

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/22/2011 at 08:55

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Results released by:

authorized signature

Results reviewed by:

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

EXPLANATION OF REPORT SYMBOLS AND ABBREVIATIONS

The following defines common symbols and abbreviations used in reporting technical data:

Less than Greater than Units of concentration in milligrams per liter for liquids, and milligrams per kilogram for solids. Also referred to as parts per million. mg/L, mg/kg Units of concentration in micrograms per liter for liquids, and micrograms per kilogram for solids. Also referred to as parts per billion. μg/L, μg/kg RDL Reported detection limit. CFU Colony forming unit TNTC Too numerous to count MSL Mean sea level NTU Nephelometric turbidity units Units of specific conductance expressed in micromhos per centimeter μmhos/cm °C,°F Units of temperature expressed in degrees Celsius or degrees Fahrenheit. Measure of flow in million gallons per day (mgd) or gallons per day (gpd). mgd, gpd Compound added by the laboratory for quality control monitoring. Surrogate Data Qualifiers: Estimated value Laboratory specific qualifier - refer to case narrative or client notification form. The sample was analyzed beyond the accepted holding time. Analyte was also detected in the method blank. Result subject to sample matrix interference. Reported detection limit has been adjusted where applicable. Defined in comments. If there are multiple comments, the "Z" may be followed by a number designation. Ż Е Estimated value - the analyte was detected at concentrations greater than the calibration range. ΕI Estimated value - falls below countable plate range. The matrix spike and / or matrix spike duplicate sample recovery was not within control limits. The matrix spike and / or matrix spike duplicate sample recovery was not within control limits due to matrix interference. The RPD between the sample / duplicate or matrix spike / spike duplicate was not within quality control limits. The RPD between the sample / duplicate or matrix spike / spike duplicate was not within quality control limits due to sample matrix interference R The surrogate was not within quality control limits. ŘΙ The surrogate was not within quality control limits due to matrix interference. The analyte in the LCS was not within control limits. Due to a discrepancy between the BOD and COD results, the BOD has been reported as less than the COD value.

<u>LIMITATION OF LIABILITY</u> - The accuracy of all analytical results is for the sample as is received by the laboratory. The integrity of the sample begins at the time it is placed in the possession of authorized Rogers and Callcott Engineers, Inc. laboratory personnel. All warranties, expressed, or implied, are disclaimed. Liability is limited to the cost of the malyses.

SAMPLE RETURN POLICY - Rogers and Calleott Engineers, Inc. reserves the right to charge a sample disposal fee or to return samples to the client.

Reporting limit has been adjusted due to limited sample volume.

Sample Number	Sample Description, 1	Date and Time Co	<u>llected</u>	•							
AD14459	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/22/2011 at 08:55										
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method				
pH (Field)	6.2	pH units		0.1	11/22/2011 08:55	LRW	SM 4500HB				
Temperature (Field)	18.6	degrees C	4 *	0.1	11/22/2011 08:55	LRW	SM 2550B				

Sample Number S	ample Description, Da	te and Time (Collected			•	
	chlumberger Technolo t 08:55	gy TMC Water	Treatment Pla	nt Effluer	nt Discharge grab, c	ollected on	11/22/2011
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method
3 to 5 day turn around	Completed				11/28/2011 00:00		
Total Suspended Solids	5.4	mg/i		2.0	11/22/2011 15:35	JĻA	SM 2540D
Polychiorinated Biphenyis (PCBs)	•						
PCB-1016	< RDL	ug/i		0.5	11/24/2011 09:53	RKH	EPA 608
PCB-1221	< RDL	ug/l		0.5	11/24/2011 09:53	RKH	EPA 608
PCB-1232	< RĎL	ug/l		0.5	11/24/2011 09:53	RKH	EPA 608
PCB-1242	< RDL	ug/l		0.5	11/24/2011 09:53	RKH	EPA 608
PCB-1248	< RDL	ug/l		0.5	11/24/2011 09:53	RKH	EPA 608
PCB=1254	< RDĹ	ug/l		0.5	11/24/2011 09:53	RKH	EPA 608
PCB-1260	< RDL	ug/I		0.5	11/24/2011 09:53	RKH	EPA 608
2,4,5,6-Tetrachloro-m-xylene, (Surro	ogate 79	%		0	11/24/2011 09:53	RKH	EPA 608
Decachlorobiphenyl, (Surrorate)	86	%		0	11/24/2011 09:53	RKH	EPA 608
Liquid-liquid Extraction Pest/PCB 60	08 Completed	•			11/22/2011 13:00	CGW	EPA 608

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ROGERS & CALLCOTT

CHAIN OF CUSTODY RECORD

PAGE ____OF ____

I A	BORATORY SERVICES					
	655, Greenville, SC 29606		[N	/N/		/ Filtered (Yes/No)
Phone (86	4) 232-1556 Fax (864) 232-6140 Address: 426 Fairforest Way		$\sqrt{\sqrt{\chi}}$	(,)	1 / /	Cooled (Yes/No)
	Greenville, SC 29607		P/0	9//	7//	Container Type (P/G)
Client Name	umbercer_		BEDE	4//	777	Container Volume
Address			GC		111	Sample Type (Grab/Composite)
			WWWW/	1		Sample Source (WW, GW, DW, Othe
Report To:				11	111	Sample Source Chlorinated (Yes/N
		s s	NK/NEG/	/ /	1 / / L	ob Receipt Cl. Check Mcc
Telephone No.	•	Containers	JK/7/	1		Receipt pH Check
PO No	Project No	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	21	1 1		Preserved (Code)
Rogers & Yr∐ Callcott Time	Sample Description	2	300			A-None D-NoOH G-Baric Acid B-HNO ₃ E-HCL H-Ascorbic Acid C-H _a SO ₄ F-No ₃ S ₃ O ₃ I-
Lab No. Date		Total Number	Dag.			COMMENTS:
		₽ ₹				AD14459
H454 11/22 10855	WATER TRUETMENT OLANT	2	11-10			014 6.2 GAAB TAKE
Ken	ETT. Disch.				4 1 27	mp18.64 + READE OF
11.20						on 11/22/11 By RtC
				1		
				++		
SAMPLER) Relinguished by (Sig.)	Date/Time Received by (Sig	1021	Date/Tir	- 1	KNOWN H	AZARDS ASSOCIATED WITH SAMPLES
Ol Alph War	11/22/11/2/0 Shipper Name &	7	11.33.11			
Relinquished by (Sig.)	Date/Time Received by (Sig (4) Shipper Name &		Dote/Tir	ne		
201	Date/Time Received by (Sig		Dote/Tir	ne	Temperat	ure of blank or representative sam
Relinquished by (Sig.)	Shipper Name &	: #			At time	e of collectionC
Seal # at'chd by	Recyd. Intact by Seal #	at'chd by	Recvd. Intoc		At time	e of lab receipt 6.7.



AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC:29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project Attention Virgilio Cocianni by emall

Date Received:

11/29/2011

Time Received:

12:12

Date Reported:

12/01/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD14723

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/29/2011 at 09:10

AD14724

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,

collected on 11/29/2011 at 09:10

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Boscia f. Missier

Results reviewed by:

88

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

Sample Number Sample Description, Date and Time Collected												
AD14723 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/29/2011 at 09:10												
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method					
pH (Field)	6.2	pH units		0.1	11/29/2011 09:10	LRW	SM 4500HB					
Temperature (Field)	16.1	degrees C		0.1	11/29/2011 09:10	LŔW	SM 2550B					

Sample Number S	Sample Description, Date and Time Collected													
	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/29/2011 at 09:10													
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method							
3 to 5 day turn around	Completed		- 122 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 		12/01/2011 00:00									
Total Suspended Solids	3.8	mg/l		2.0	11/29/2011 13:35	JLA	SM 2540D							
Polychiorinated Biphenyls (PCBs)														
PCB-1016	< RDL	ug/l		0.5	11/30/2011 21:30	RKH	EPA 608							
PCB-1221	< RDL	ug/l		0.5	11/30/2011 21:30	RKH	EPA 608							
PCB-1232	< RDL	ug/l	:	0.5	11/30/2011 21:30	RKH	EPA 608							
PCB-1242	< RDL	ug/l		0.5	11/30/2011 21:30	RKH	EPA 608							
PCB-1248	< RDL	ug/l		0.5	11/30/2011 21:30	RKH-	EPA 608							
PCB-1254	< RDL	ug/l	;	0.5	11/30/2011 21:30	ŘKH	EPA 608							
PCB-1260	< RDL	ug/l	•	0.5	11/30/2011 21:30	RKH	EPA 608							
2,4,5,6-Tetrachloro-m-xylene, (Surro	gate 95	%	•	0	11/30/2011 21:30	RKH	EPA 608							
Decachlorobiphenyl, (Surrorate)	90	%	!	0	11/30/2011 21:30	RKH	EPA 608							
Liquid-liquid Extraction Pest/PCB 60	8 Completed	•			11/29/2011 14:15	CGW	EPA 608							



ROGERS & CALLCOTT

CHAIN OF CUSTODY RECORD

PAGE _______ OF _____

	J.A	ABORATORY SERV	/ICES	_								
	P.O. Box	: 5655, Greenville, SC 29606	·					L	N/N	/		Filtered (Yes/No)
·	Phone (6 Shipping	364) 232-1556: Fax (864) 232-6 Address: 426 Fairforest Way	140		1			Δ	1/4/		\mathcal{I}	/ / Cooled (Yes/No)
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Rogers & Yr.// Collcott Lab No. Date	Time	Sample Desc	ription	fotal Number o	ERS		0-		-			A-None D-NaOH G-Boric Adid B-HNO ₃ E-HCL H-Ascorbic Adid C-H ₂ SO ₄ F-No ₂ S ₂ O ₅ I-
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Form Revised July	2008		•									R/C COC FORM

ARCADIS

Attachment B

Laboratory Services Report: Whole Effluent Toxicity Testing



AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606 Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Cllent:

Schlumberger Technology Corporation Sangamo - Twelve Mile Creek Project Attention Virgilio Cocianni by email

Date Received:

11/01/2011

Time Received:

13:35

Date Reported:

11/14/2011

South Carolina Laboratory Identification 23105

North Carolina Laboratory Certificate Number 27.

NELAP Laboratory Identification E87822

Sample Number

Sample Description

AD12743 Schlumberger Technology TMC \

Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/01/2011 at 09:50

e attached remart is for the samules that were received and are referenced above. Poor

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

authorized signature

Results reviewed by:

86

Carbon copy: Email to L Ketcham S Handley A Kohler S Cary

Sample Number	Sample Description, D	ate and Time	Collected							
AD12743	AD12743 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 11/01/2011 at 09:50									
Parameter	Result	Unit	Flag	RDL	Date/Time	Analyst	Method			
Subcontracted Sample Analysis	Completed				11/14/2011 00:00					

Analysis comment for Subcontracted Sample Analysis: See enclosed subcontract report which includes a total of 4 pages for Acute Toxicity from ETT Environmental Inc.

4 Craftsman Court, Greer, SC 29650

Ceriodaphnia dubia 48 Hour Acute Pass/Fail Test

EPA-821-R-02-012 Method 2002

Client: SCHLUMBERGER

Facility: Water Treatment Plant Effluent Discharge

NPDES #: SC

Test Date:

01-Nov-11

Laboratory ID#: T38748

Rogers & Callcott ID: AD12743

Test Reviewed and Approved By:

Robert W. Kelley, Ph.D.

QA/QC Officer

- andre finding

Farhad Rostampour Laboratory Director



Certification #K87819

Test results presented in this report conform to all requirements of NELAC, conducted under NELAC Certification Number E87819

Florida Dept. of Health, Included results pertain only to provided samples.

SCDHEC Certification #23104

NCDENR Certification # 022



DMR Attachment for Pass/Fail Whole Effluent Toxicity Test Results

uth ("armiling Department of Bleakh
and Environment of Control

Final Limits 04/01/2010- Parameter TGA3B

Discharge number

MLOC=1 ATC=35.50% Effluent

Monitoring period From

Year Month Day

То

Year	Month	Day
11	11	31

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ROGERS & CALLCOTT

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Phone (86) 221 130 Fax (84) 228-140 Shipper Name & # Relinguished by (Sig.) Date / Time Received by (Sig.) Relinguished by			P.O. Bo	x 5655, Greenville, SC 29606							N/	/-		/ / / Filtered (Yes/No)
Client Name Address Address Container Volume Container Volume Sample Source (WW, GW, DW, Other) Report To: Telephone No. Project No. Projec			Phone (864) 232-1556 Fax (864) 232- g Address: 426 Fairforest Way				•		\sqrt{y}	//		7	/ / Cooled (Yes/No)
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Attachment 3



Fourth Quarter Construction Photo Log



View of gabion basket installation.



View of seeding operations.



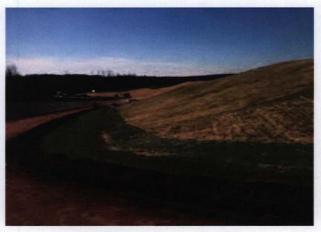
View of grading at the former topsoil stockpile area.



View of erosion control mat installation on SMU slope.



View of SMU west side, looking south.



View of SMU east side, looking south.